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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,497	05/23/2006	Josi Rosenfeld	GB 030214	2311

24737 7590 03/04/2009
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
HSIEH, PING Y	

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
03/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/580,497	ROSENFELD, JOSI	
	Examiner	Art Unit	
	PING Y. HSIEH	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,20-24,26 and 27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,20-24,26 and 27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 May 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-17, 20-24, 26 and 27 are pending.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 16 is rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent[1] and recent Federal Circuit decisions[2] indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example, a computer program product being loadable into a memory does not make program being tied to the memory.

Claim 17 is rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent[1] and recent Federal Circuit decisions[2] indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying

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[1] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).

[2] *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

subject matter (such as an article or material) to a different state or thing. While the instant claim(s) recite a series of steps or acts to be performed, the claim(s) neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example, a computer-readable medium might be a carrier or signal, which is not a statutory subject matter.

[1] *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).
[2] *In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008).

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: in claim 17, a computer-readable *medium* carrying software code is not defined in the specification.

Claim Objections

3. Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 7-10, 13, 14, 16, 17, 20-22 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Goren et al. (U.S. PATENT NO. 7,069,025).

-Regarding claims 1, 16 and 17, Goren et al. disclose a positioning method for a radio system **(as disclosed in fig. 15 and 16)**, the method comprising: receiving signals at a unit of the system **(receive data signal as disclosed in step 1510, fig. 15 and further disclosed in col. 22 lines 9 – 11)**; applying at least one test on the received signals prior to processing the signals **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59)**; in accordance with the applied test, selecting one of a correlation processing operation and a leading edge processing operation **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56; or in some cases, use leading edge operation 1585 if the peak 1502 is overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 56-59)**; and performing the selected one of the correlation

processing operation and the leading edge processing operation **(as disclosed in col. 22 lines 43-59)**.

-Regarding claim 2, Goren et al. further disclose the test applied comprises determining whether a signal level of the received signal is above a threshold value **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59)**.

-Regarding claim 3, Goren et al. further disclose in response to the level of the received signal being below the threshold value, selecting the correlation processing operation **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56)**.

-Regarding claims 7 and 26, Goren et al. further disclose repeating the test application and operation steps at predetermined intervals **(repeat the test application and operation steps at the intervals of receiving data signals as disclosed in Fig. 6 and Fig. 15)**.

-Regarding claim 8, Goren et al. further disclose coherently superposing received pulses before the test application step **(evaluate correlation function 1570 as disclosed in Fig. 15)**.

-Regarding claim 9, Goren et al. further disclose convoluting of a pulse with a bump function **(leading edge detection 1585, Fig. 15)**.

-Regarding claim 10, Goren et al. further disclose in response to a signal level being below the signal level threshold, extending the receiving time period for the signal before the next/successive test application(s) **(when the correlation function quality is not sufficient, evaluate correlation function and test correlation function quality sufficiency again as disclosed in Fig. 15)**.

-Regarding claim 13, Goren et al. further disclose effecting the leading edge processing operation after selection with no intermediate testing or processing **(use leading edge operation 1585 if the peak 1502 is overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 56-59)**.

-Regarding claim 20, Goren et al. disclose a positioning apparatus for a radio system **(as disclosed in Fig. 15 and 16 and further disclosed in col. 22 lines 1 – 5)**, the apparatus comprising: a receiver which receives radio frequency signals which have potentially suffered at least one of noise degradation and multipath degradation in a propagation environment **(receiver 110, Fig. 1; receive data signal as disclosed in step 1510, Fig. 15 and further disclosed in col. 22 lines 9 – 11)**; testing means for testing the received radio frequency signals, which have not been subject to a correlation processing operation, for at least noise degradation and multi-path degradation **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or**

overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59) and selecting one of; a correlation processing operation and a leading edge processing operation based on the testing **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56; or in some cases, use leading edge operation 1585 if the peak 1502 is overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 56-59)**; and a processor which subsequently processes the tested radio frequency signals with the selected one of the correlation based processing operation and the leading edge processing operation **(as disclosed in col. 22 lines 43-59)**.

-Regarding claim 21, Goren et al. further disclose the testing means includes means to determine whether a signal level of the received radio frequency signal is above a threshold value **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59)**.

-Regarding claim 22, Goren et al. further disclose the testing means includes means which selects the correlation processing operation if the level of the received signal is below the threshold value **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56)**.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 4-6, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goren et al. (U.S. PATENT NO. 7,069,025) Diener et al. (U.S. PATENT NO. 7,006,838).

-Regarding claims 4 and 23, Goren et al. teach all the limitation as claimed in claims 1 and 2. Goren et al. further disclose determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59. However, the combination fails to disclose a leading edge gradient/gradient threshold.

Diener et al. disclose a signal detector 520 and a pulse detector coupled to the peak detector that detects from the peak information pulses that meet the configured criteria as disclosed in col. 8 lines 41 - 46.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method as disclosed by Goren et al. to include the step of detecting the peak information pulses that meet the configured criteria as disclosed by Diener et al. One is motivated as such in order to provide accuracy for identifying location using leading edge operation.

-Regarding claim 5, Goren et al. disclose a positioning method for a radio system **(as disclosed in Fig. 15 and 16)**, the method comprising: receiving signals at a unit of the system **(receive data signal as disclosed in step 1510, Fig. 15 and further disclosed in col. 22 lines 9 – 11)**, applying at least one test on the received signals to select a processing operation on the signals **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59)**, the operation being one of the following: a correlation processing operation and a leading edge processing operation **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56; or in some cases, use leading edge operation 1585 if the peak 1502 is overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines**

56-59); wherein the applied test comprises: determining whether a signal level of the received signal is above a threshold value **(determining if the correlation function quality is sufficient in step 1575, fig. 15)**; when the level of the received signal is below the threshold value, selecting the correlation processing operation **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56)** selecting the leading edge processing operation **(use leading edge operation 1585 if the peak 1502 is overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 56-59)**; and effecting the selected operation **(as disclosed in col. 22 lines 43-59)**. However, Goren et al. fail to specifically disclose a leading edge gradient/gradient threshold.

Diener et al. disclose a signal detector 520 and a pulse detector coupled to the peak detector that detects from the peak information pulses that meet the configured criteria as disclosed in col. 8 lines 41 - 46.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method as disclosed by Goren et al. to include the step of detecting the peak information pulses that meet the configured criteria as disclosed by Diener et al. One is motivated as such in order to provide accuracy for identifying location using leading edge operation.

-Regarding claim 6, the combination further discloses if the leading edge gradient is above the gradient threshold value, the correlation processing operation is selected **(Diener et al., knowing the type of the signal to be**

located after detecting from the peak information pulses that meet the configured criteria, can be useful in deciding on what type of signaling process to use in order to obtain TDOA measurements to locate the source of the signal as disclosed in col. 8 lines 41 - 55; and Goren et al., correlation function quality sufficient step 1575 as disclosed in Fig. 15).

-Regarding claim 24, the combination further discloses the testing means includes means which selects: the leading edge processing operation in response to the leading edge gradient being below the gradient threshold value **(Diener et al., knowing the type of the signal to be located after detecting from the peak information pulses that meet the configured criteria, can be useful in deciding on what type of signaling process to use in order to obtain TDOA measurements to locate the source of the signal as disclosed in col. 8 lines 41 - 55; and Goren et al., estimate TOA step 1580 as disclosed in Fig. 15)**, and the correlation processing operation in response to the leading edge gradient being above the gradient threshold value **(Diener et al., knowing the type of the signal to be located after detecting from the peak information pulses that meet the configured criteria, can be useful in deciding on what type of signaling process to use in order to obtain TDOA measurements to locate the source of the signal as disclosed in col. 8 lines 41 - 55; and Goren et al., correlation function quality sufficient step 1575 as disclosed in Fig. 15)**.

-Regarding claim 27, Goren et al. disclose a positioning method for a radio system **(as disclosed in fig. 15 and 16)**, the method comprising: receiving signals at a unit of the system **(receive data signal as disclosed in step 1510, fig. 15 and further disclosed in col. 22 lines 9 – 11)**; applying at least one test on the received signals prior to processing the signals **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59)** to select between a correlation processing operation and a leading edge processing operation **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56; or in some cases, use leading edge operation 1585 if the peak 1502 is overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 56-59)**, the test including determining whether a signal level of the received signal is above a threshold value **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59)**; in response to the level of the received signal being below the threshold value, selecting the correlation processing operation **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56)**; when the level of the

received signal is above the received signal is above the threshold value, testing whether a leading edge gradient is above a gradient threshold value **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59)**; in response to the leading edge gradient value being below the gradient threshold value, selecting the leading edge processing operation **(use leading edge operation 1585 if the peak 1502 is overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 56-59)**; and in response to the leading edge being above the gradient threshold value, selecting the correlation processing operation **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56)**. However, Goren et al. fail to specifically disclose a leading edge gradient/gradient threshold.

Diener et al. disclose a signal detector 520 and a pulse detector coupled to the peak detector that detects from the peak information pulses that meet the configured criteria as disclosed in col. 8 lines 41 - 46.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method as disclosed by Goren et al. to include the step of detecting the peak information pulses that meet the configured criteria as disclosed by Diener et al. One is motivated as such in order to provide accuracy for identifying location using leading edge operation.

9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goren et al. (U.S. PATENT NO. 7,069,025) in view of Rudowicz et al. (U.S. PATENT NO. 6,052,561).

-Regarding claims 11 and 12, Goren et al. disclose all the limitations as claimed in claim 1. However, Goren et al. fail to specifically disclose before testing whether the leading edge gradient is above a threshold value, reducing the next transmit period and reducing the time period for the leading edge test for operation in a power-saving mode.

Rudowicz et al. disclose before testing whether the leading edge gradient is above a threshold value, reducing the next transmit period and reducing the time period for the leading edge test for operation in a power-saving mode **(see col. 9 line 59-col. 10 line 18)**.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the position method of Goren et al. to include the features as disclosed by Rudowicz et al. One is motivated as such in order to reduce power consumption.

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goren et al. (U.S. PATENT NO. 7,069,025).

-Regarding claim 14, Goren et al. disclose a positioning method for a radio system **(as disclosed in fig. 15 and 16)**, the method comprising: receiving signals at a unit of the system **(receive data signal as disclosed in step 1510,**

fig. 15 and further disclosed in col. 22 lines 9 – 11); applying at least one test on the received signals prior to processing the signals to select a processing operation on the signals **(determining if the correlation function quality is sufficient in step 1575, fig. 15; and further determining if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59)**, the operation being one of the following: a correlation processing operation, and a leading edge processing operation **(use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56; or in some cases, use leading edge operation 1585 if the peak 1502 is overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 56-59)**; then effecting the selected operation **(as disclosed in col. 22 lines 43-59)**. Although Goren et al. does not specifically disclose measuring a gradient using the formula:

$$i = \frac{Cdv}{Dt},$$

the examiner takes official notice that the formula was well known in the art and would have been obvious to one of ordinary skills in the art at the time of the invention to use it for measuring gradient.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goren et al. (U.S. PATENT NO. 7,069,025) in view of Sanderford, Jr. (U.S. PATENT NO. 5,742,635).

-Regarding claim 15, Goren et al. disclose all the limitations as claimed in claim 1. However, Goren et al. fail to specifically disclose the leading edge processing operation comprises differentiating the received signal voltage or peak and locating the zero-crossing.

Sanderford, Jr. discloses the leading edge processing operation comprises differentiating the received signal voltage or peak and locating the zero-crossing **(as disclosed in col. 2 lines 17-42)**.

Therefore, it would have been obvious to one of ordinary skills in the art at the time of invention to modify the method of Goren et al. to include the process as disclosed by Sanderford, Jr. One is motivated as such in order to improve the accuracy of a time-of-flight time stamp.

Response to Arguments

Applicant's arguments filed 12/18/08 have been fully considered but they are not persuasive. In page 10 of the remarks, applicant argues that claims 1, 5, 14, 16, 17, 20 and 27 are distinguished patentably and unobviously over Goren and Mohseni. The examiner respectfully disagrees. Upon further consideration, a new ground of rejection in view of Goren itself or modified by Diener is sufficient to teach all the limitations of claims 1, 5, 14, 16, 17, 20 and 27. Therefore, the argument regarding the combination of Goren and Mohseni is moot. Furthermore, regarding to the previous argument filed 8/4/08 in pages 9-11 of the remarks, applicant argues that Goren does not disclose "applying at least one test on the received signals prior to processing the signals to select a processing

operation". The examiner respectfully disagrees. Goren indeed discloses at least one test on the received signals prior to select a processing operation, the tests are first to determine if the correlation function quality is sufficient as disclosed in step 1575, fig. 15; and second, to determine if the peak 1502 is able to be distinguished from peak 1504 or overlap or merge with multipath peak 1504 as disclosed in fig. 15A and col. 22 lines 43-59. The applicant further argues in page 10 of the remarks filed 8/4/08 that neither Goren nor Diener disclose a leading edge gradient having a gradient threshold value and selecting a leading edge processing operation when the leading edge gradient is below the gradient threshold value. Goren indeed discloses use channel estimation operation 1590 if the peak 1502 can be distinguished from peak 1504 as disclosed in fig. 15A and col. 22 lines 49-56; although Goren does not specifically disclose a leading edge gradient, Diener et al. disclose a signal detector 520 and a pulse detector coupled to the peak detector that detects from the peak information pulses that meet the configured criteria as disclosed in col. 8 lines 41 – 46, which can be use as a gradient/gradient threshold.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PING Y. HSIEH whose telephone number is (571)270-3011. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lana N. Le can be reached on (571)272-7891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. Y. H./
Examiner, Art Unit 2618

/Lana N. Le/
Primary Examiner, Art Unit 2614